

FORM PTO-1390 (Modified)  
(REV 11-98)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES

DESIGNATED/ELECTED OFFICE (DO/EO/US)

CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER

112740-342

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

09/937917

INTERNATIONAL APPLICATION NO.

PCT/DE00/00931

INTERNATIONAL FILING DATE

27 March 2000

PRIORITY DATE CLAIMED

31 March 1999

TITLE OF INVENTION

METHOD FOR TELECOMMUNICATIONS NETWORK, FOR CONVEYING INFORMATION BETWEEN A SWITCHING OFFICE AND A COMMUNICATIONS TERMINAL

APPLICANT(S) FOR DO/EO/US

Wahid Adli

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
  - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ A copy of the International Search Report (PCT/ISA/210).
8. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
  - a. ☒ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
9. ☒ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 20 below concern document(s) or information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☒ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☒ Certificate of Mailing by Express Mail
20. ☒ Other items or information:

Submission of Drawings Figure 1 on one sheet

**PCT/DE00/00931**

112740-342

21. The following fees are submitted:

**BASIC NATIONAL FEE ( 37 CFR 1.492 (a) (1) - (5) ) :**

- |                                     |                                                                                                                                                                                                           |                   |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <input type="checkbox"/>            | Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO . . . . . | <b>\$1,000.00</b> |
| <input checked="" type="checkbox"/> | International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO . . . . .                                                           | <b>\$860.00</b>   |
| <input type="checkbox"/>            | International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO . . . . .                                                      | <b>\$710.00</b>   |
| <input type="checkbox"/>            | International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) . . . . .                                                       | <b>\$690.00</b>   |
| <input type="checkbox"/>            | International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) . . . . .                                                             | <b>\$100.00</b>   |

**ENTER APPROPRIATE BASIC FEE AMOUNT =**

Surcharge of **\$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	12 - 20 =	0	x \$18.00	\$0.00
Independent claims	2 - 3 =	0	x \$80.00	\$0.00
Multiple Dependent Claims (check if applicable).			<input type="checkbox"/>	\$0.00

**TOTAL OF ABOVE CALCULATIONS =**

Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) (check if applicable).

<b>SUBTOTAL</b>	=	<b>\$890.00</b>
-----------------	---	-----------------

Processing fee of **\$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).

<b>TOTAL NATIONAL FEE</b>	<b>=</b>	<b>\$890.00</b>
---------------------------	----------	-----------------

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable).

<b>TOTAL FEES ENCLOSED</b>	<b>=</b>	<b>\$890.00</b>
----------------------------	----------	-----------------

Amount to be: refunded	\$
charged	\$

- ☒ A check in the amount of **\$890.00** to cover the above fees is enclosed.
- ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \_\_\_\_\_ to cover the above fees.  
A duplicate copy of this sheet is enclosed.
- ☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **02-1818** A duplicate copy of this sheet is enclosed.

**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

**SEND ALL CORRESPONDENCE TO:**

**William E.. Vaughan (Reg. No. 39,056)**  
**Bell, Boyd & Lloyd LLC**  
**P.O. Box 1135**  
**Chicago, Illinois 60690**

**SIGNATURE**

**William E. Vaughan**

NAME \_\_\_\_\_

**39,056**

REGISTRATION NUMBER

**October 1, 2001**

DATE \_\_\_\_\_

BOX PCT

IN THE UNITED STATES ELECTED/DESIGNATED OFFICE  
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE  
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

5

**PRELIMINARY AMENDMENT**

APPLICANT: Wahid Adli

DOCKET NO.: 112740-342

SERIAL NO.:

GROUP ART UNIT:

EXAMINER:

INTERNATIONAL APPLICATION NO.: PCT/DE00/00931

10

INTERNATIONAL FILING DATE: 27 March 2000

INVENTION: METHOD AND TELECOMMUNICATIONS NETWORK,  
FOR CONVEYING INFORMATION BETWEEN A  
SWITCHING OFFICE AND A COMMUNICATIONS  
TERMINAL

15

Assistant Commissioner for Patents,  
Washington, D.C. 20231

Sir:

Please amend the above-identified International Application before entry  
into the National stage before the U.S. Patent and Trademark Office under 35

20

U.S.C. §371 as follows:

**In the Specification:**

Please replace the Specification of the present application, including the  
Abstract, with the following Substitute Specification:

**SPECIFICATION**

25

**TITLE OF THE INVENTION**

METHOD AND TELECOMMUNICATIONS NETWORK FOR CONVEYING  
INFORMATION BETWEEN A SWITCHING OFFICE AND A  
TELECOMMUNICATIONS TERMINAL

**BACKGROUND OF THE INVENTION**

30

The present invention relates to a method for transmitting data to operators  
of a telecommunications network which are members of an operator service, the

data being specifically for the operator service, and at least one data channel and at least one call channel being available for each link.

The present invention also relates to a telecommunications network having a number of switching offices, in which telecommunications network operators  
5 which are members of an operator service are connected to at least one switching office, and each switching office has at least one coordination processor and peripheral line trunk groups with a group processor for the subscribers.

What are referred to as operator services which constitute an essential link between the customers of the network and the network operators are required in  
10 telephone networks. Such an operator service has diverse functions, one main function being to distribute information to subscribers on request. For example, a subscriber may call an operator service in an ISDN network and request information. The respective operator can then, if necessary, access a database, for example, in which case information relating to another subscriber is then provided  
15 to him/her on the screen of a PC. After a connection request by the operator, which can be effected, for example, by pressing a push-button key, the operator is connected to the searched-for subscriber. The operator is then connected back to the originating subscriber and to the searched-for subscriber and can optionally speak to one of the subscribers. Signaling on the D channel then takes place again  
20 at the push of a further push-button key, and the connection situations of the two subscribers of the peripheral line trunk group are indicated, and the call channels are connected via the switching matrix so that ultimately there is a direct link between the two subscribers. The example described here is intended to represent just one of the possibilities or functions of an operator service.

25 Larger networks with a larger number of subscribers require a correspondingly large number of operator service systems with a large number of usually hierarchically structured system subscribers (operators), such as, for example, in the case of the Applicant's system which is called ADMOSS. Messages from the operators to a switching office are sent, as already mentioned, in  
30 the D channel in an ISDN network, specifically in a point-to-point configuration with a permanently active layer 2 of the OSI layer model. The messages are

transmitted in an ISDN network with the support of the D channel protocol, for which reason reference is also made to the Blue Book, Volume VI - Fascicle VI. 11, "Digital Subscribe Signalling System No. 1 (DSS1), Network Layer, User-Network Management", Recommendations Q. 930 - Q. 940, in particular to  
5 Recommendation Q. 931.

The operators are usually located in what are referred to as call centers, and a respective device, composed of a terminal, PC, screen etc., and referred to below as "console" is directly connected to the system and/or can be connected to the local switching office. However, the need to use decentralized operators, for  
10 example within the context of homeworkers, is being increasingly felt, but a single central management system for the operators in the network should still be possible.

The PC of each operator has software installed which is suitable for the operator service, but when the operator logs on, i.e. the console is respectively first  
15 put into operation, data from the carrier is also required. In such a case, the operator logs on by inputting his/her password and ID numbers and specific data is then loaded onto the console ("downloading") by the carrier, this data being, for example, the system clock times and data, the hierarchy structure, personal data and different rights, for example access possibilities to statistical data etc. If the  
20 operator is a supervisor, i.e. a high-ranking member in the hierarchy, he/she will also obtain access to tables which provide information on the working status of other operators etc.

US-A-5,469,504 describes a call distributor system having a host computer together with a database which is physically connected to all the switching offices,  
25 and serves as a system for switching and/or conveying the data between the individual switching offices to which operators of an operator service are connected. In this system, a call link is firstly offered to an operator via the local switching office and, if the operator is not suitably located for this call, this call is transferred to a further operator using the host computer, this transfer being made  
30 using a special protocol, referred to in the document as "intertandem protocol". This protocol uses a DTMF method. The expenditure incurred as a result of the use

of the host computer in conjunction with the X.25 interface protocol described in the document and the intertandem protocol is, however, to be considered as disadvantageous.

One object of the present invention is to disclose a method which permits the aforesaid specific information, which will be available in a centrally stored form, to be loaded to operator consoles which may be situated at any desired location in a network, without complex changes to existing systems being required.

### SUMMARY OF THE INVENTION

This object is achieved with a method in which, according to the present invention, after an operator logs on to a remote master office in which the specific data for the operator service are present centrally, a request is transmitted by the coordination processor of the master office to a virtual operator set up in a peripheral line trunk group in order to initiate a dialing process to the operator, after which a link setup to the subscriber is carried out via a call channel and a corresponding message is transmitted to the coordination processor. The data to be transmitted are then loaded in the master office from the coordination processor into a group processor, a data transmission link in the master office is set up starting from this group processor to a peripheral line trunk group for fast data links, and the data to be transmitted is then transmitted via a data link to a peripheral line trunk group for fast data links between the switching office of the operator and from there, within the switching office, to the peripheral line trunk group (LTG) of the operator. Finally, the data to be transmitted is transmitted from this peripheral line trunk group to the operator.

Pursuant to the present invention, operators which are also connected to different switching offices of a communications network can receive specific, centrally managed data, this loading of data not necessarily having to be restricted to the initialization phase when logging on is performed.

It is expedient if the data to be transmitted is transmitted from the peripheral line trunk group to the operator via a data channel, this constituting the customary possibility for the data transmission, which also should be provided in the network in accordance with regulations.

However, because, a call connection is set up according to the present invention, it also may be appropriate if the data to be transmitted is transmitted via the set-up call channel using a data link program.

5 In order to take into account the dynamics and the resources of the group processor of the master office, an indication is given if the data from the coordination processor of the master office is loaded into the group processor in blocks of limited size via an existing data link interface.

10 The present invention is particularly suitable for applications in an ISDN network, the data channel being the D channel, and the call channels being B channels. In this case, the inter-office signaling system is advantageously an ISUP signaling system.

15 The aforementioned object of the present invention is also achieved with a telecommunications network in which, according to the present invention, a virtual operator is set up in a peripheral line trunk group of a switching office serving as master office, and is provided for transmitting data from the coordination processor of the master office to an operator of the operator service. The coordination processor of the master office is configured to transmit a request to the virtual operator, and to initiate a dialing process to the operator so that the data to be transmitted can be transmitted, after setting up of a data transmission link within  
20 the master office, via a peripheral line trunk group for fast data links of the master office to such a line trunk group of the switching office of the operator and can be transmitted from this switching office to the operator.

25 Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the Figures.

#### BRIEF DESCRIPTION OF THE FIGURES

Figure 1 shows the basic structure of a network with two switching offices and an operator service.

#### DETAILED DESCRIPTION OF THE INVENTION

30 At the top left of the figure there are a number of operators OP1, OP2 ... of an operator service OPS, details of the hierarchy within the operators OP1, OP2 ...

not being given here. All operators OP1, OP2 ... are next to customary network operators TEI of a telecommunications network NET, of an ISDN network in the present case, and are therefore connected into the network via an  $S_0$  interface; i.e., each connected here to a network terminal NTE.

5           A first switching office VS1 of the network is shown top right and it has, in a manner known per se, a switching matrix SNE and periphery line trunk groups LTG, LTC connected thereto. A coordination processor COP is provided for controlling the switching office VS1, especially the switching matrix SNE. Each peripheral line trunk group LTG, LTC also contains, in a known manner, a group processor GRP. In this exemplary embodiment concentrators DLU (Digital Line Unit) are connected to each peripheral line trunk group via a  $U_{k0}$  interface. Each of these concentrators DLU also has a number of inputs for the network terminals already mentioned above. In the case of relatively large switching offices, up to 512 peripheral line trunk groups LTG, LTC can be connected to a switching matrix SNE, and usually two concentrators DLU are connected to each line trunk group LTG. The peripheral line trunk groups LTG, LTC each also contain, in a known manner, what is referred to as a group switch GSI.

10  
15

          In a peripheral line trunk group LTG, LTC, various programs are executed which are supported by the group processor GRP; for example, the greater part of the connection setup, the signaling, the code reception etc., takes place here. In general, 70% of the connection setup is carried out in the peripheral line trunk groups, whereas especially routing functions are assigned to the coordination processor COP.

20

          The switching office also includes an operation and maintenance system OMS with an operation and maintenance terminal OMT at which monitoring personnel can continuously monitor the state of the switching office and detect faults.

25

          The operators OP1, OP2 ... of the operator service OPS usually have workstations with personal computers which contain ISDN cards and special software as well as headsets for the operators. The operators OP1, OP2, ... can transmit messages to the switching office, especially to the peripheral line trunk

30



groups LTG, these messages being processed in the group processor GRP and devised to corresponding further measures; for example, a connection setup. The messages are transmitted in a point-to-point configuration with a permanently active layer 2 and in the D channel in an ISDN network.

5 Bottom right in the drawing there is a further switching office VS2 which is associated with the network NET and whose setup corresponds basically to the first switching office VS1, but the second switching office VS2 serves as a master office above the operator service. Of course, a large number of other switching offices (not shown here) also may be provided as a function of the size of the network.

10 Each switching office VS1, VS2 has a particular peripheral line trunk group LTC for fast data links which permit data exchange, within the scope of inter-office signaling; for example, in the ISUP signaling system (see, for example, P. Bocker, ISDN - Digitale Netze für Sprach-, Text-, Daten-, Video- und  
15 Multimediakommunikation [Digital Networks for Call, Text, Data, Video and Multimedia Communication], 4th Edition, Springer [Publishing house], Section 6.2.9, "Zwischenamtsignalisierung" [Inter-office signaling]), with other such line trunk groups via rapid data links, for example optical fiber lines.

In the present case, that data which is to be loaded into the consoles of the operators OP1, OP2, ... may be in the remote office, i.e. the switching office VS2,  
20 namely in its coordination processor COP. In order to transmit the aforesaid data which is specifically for the operator service and which is composed, for example, of tables for the function of the console, to the operator OP1, the present invention provides a method described in more detail below.

Firstly, the operator OP1 logs on with a password and an ID number to the  
25 remote switching office VS2, the master office, which is, however, not a subject of the present invention. In principle, after the operator OP1 logs on to the remote switching office VS2, the coordination processor COP of the master office VS2 transmits a request to a virtual operator VOP to initiate a dialing process to the operator OP1. Such a virtual operator, which is set up in a peripheral line trunk  
30 group LTG, is required by the coordination processor COP in order to be able to set up a call link. In fact, a connection setup is then carried out starting from the virtual

operator VOP, to the operator OP1 via a call channel, here a B channel, and after the successful connection setup the coordination processor COP is also informed of the call status and also informed in the event of a disconnection of the link.

The corresponding program part then initiates, given a successful setup of a link, a data link connection from a PC or the like to the coordination processor, a corresponding identification of this new type of link, which also can be referred to as a "remote downloading" link, being used. The data is then loaded, for example, in blocks of four kbytes into a group processor GRP by the coordination processor via the existing data link interface. A data transmission link RIN (Report Interface) in the master office VS2 is then set up starting from this group processor GRP to a peripheral line trunk group LTC. This line trunk group LTC is used for fast data links to other offices, the data to be transmitted then being transmitted via a fast data link, for example an optical fiber cable, to a corresponding peripheral line trunk group LTC of the switching office VS1 of the subscriber OP1, from here within the switching office VS1 to the peripheral line trunk group LTG of the subscriber. Finally, the data to be transmitted are transmitted from this peripheral line trunk group LTG to the operator OP1 and loaded there. The transmission from the peripheral line trunk group LTG of the operator OP1 to the latter is made via a D channel in which a data link to the console is set up. However, it is also possible to load the further data into the console via a B channel link, for which purpose a corresponding data transmission protocol has to be employed for using the B channel as a data transport medium. After all the data has been transmitted, the data link connection is released and finally the existing call between the operator OP1 and the vertical operator is also released from the console.

It is to be noted that the loading of data does not necessarily have to have its starting point in a request of the operator OP1, but a link from the master office to the operator OP1 can instead also be made at the request of the operator service using the virtual operator VOP. Of course, all this presumes that the call numbers of the corresponding operators OP1, OP2, ... are known to the master office VS2. In this context, it is necessary to set up a call for addressing purposes, and the data can then, as already mentioned, be transmitted either over the D channel at 16 kbit/s

in the case of ISDN or even over a B channel with an even higher speed; namely, 64 kbit/s in the case of ISDN. The present invention therefore permits a significant expansion of an operator service because the latter can be integrated into a large network with a multiplicity of switching offices (only two are shown in the drawing for the sake of simplification), and nevertheless centralized and clearly organized management is possible. The data loaded into the console also makes it possible to take into account the hierarchy in the operator service which is mentioned at the start, so that higher-ranking operators can receive preferred data which is not to be made available to all operators.

Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be made thereto without departing from the spirit and scope of the invention as set forth in the hereafter appended claims.

#### ABSTRACT OF THE DISCLOSURE

A method and a telecommunications network for transmitting data to subscribers of an operator service, in which, after a subscriber logs on to a remote master office, a request is transmitted from his/her coordination processor to a virtual operator in order to initiate a dialing process to the subscriber, a link setup to the subscriber is carried out via a voice channel, the data to be transmitted is then loaded in the master office from the coordination processor into a group processor, a data transmission link in the master office is set up to a peripheral line trunk group for fast data links, and the data to be transmitted is then transmitted via a data link to the switching office of the subscriber and from here to the subscriber.

#### In the claims:

On page 11, cancel line 1 and substitute the following left-hand justified heading therefor:

#### CLAIMS

Please cancel Claims 1-12 without prejudice and substitute the following claims therefore.

13. A method for transmitting data to operators of a telecommunications network, the operators being members of an operator service, the data for the

operator service being specific, and at least one data channel and at least one called channel being available for each link, the method comprising the steps of:

logging onto a remote master office, by an operator, in which the specific data for the operator service is centrally present;

5 transmitting a request by a coordination processor of the master office to a virtual operator set up in a peripheral line trunk group in order to initiate a dialing process to the operator;

setting up a link to the operator via a call channel;

transmitting a corresponding message to the coordination processor;

10 loading the data to be transmitted in the master office from the coordination processor into a group processor;

setting up a data transmission link in the master office starting from the group processor to a peripheral line trunk group for fast data links;

15 transmitting the data to be transmitted via a data link to the peripheral line trunk group for fast data links of the switching office of the subscriber;

transmitting the data from the peripheral line trunk group for fast data links, within the switching office, to a peripheral line trunk group of the operator; and

20 transmitting the data from the peripheral line trunk group of the operator to the operator.

14. A method for transmitting data to operators of a telecommunications network as claimed in Claim 13, wherein the data to be transmitted is transmitted  
25 from the peripheral line trunk group of the operator to the operator via a data channel other than the call channel.

15. A method for transmitting data to operators of a telecommunications network as claimed in Claim 13, wherein the data to be transmitted is transmitted  
30 via a set up call channel using a data-link program.

16. A method for transmitting data to operators of a telecommunications network as claimed in Claim 13, the method further comprising the step of:

loading the data from the coordination processor of the master office into the group processor in blocks of limited size via an existing data-link interface.

5

17. A method for transmitting data to operators of a telecommunications network as claimed in Claim 13, wherein the communications network is an ISDN network, the data channel is a D channel and the call channels are B channels.

10 18. A method for transmitting data to operators of a telecommunications network as claimed in Claim 17, wherein an ISUP signaling system is provided for inter-office signaling.

15 19. A telecommunications network, comprising:  
a plurality of switching offices in which operators, which are members of an operator service, are connected to at least one switching office, and each switching office having at least one coordination processor and peripheral line trunk groups with a group processor for subscribers; and

20 a virtual operator set up in a peripheral line trunk group of a switching office serving as a master office, provided for transmitting data from the coordination processor of the master office to an operator of the operator service, the coordination processor of the master office being configured to transmit a request to the virtual operator and to initiate a dialing process to the operator so that the data to be transmitted can be transmitted, after setting up of a data transmission  
25 link within the master office, via a peripheral line trunk group for fast data links of the master office to a line trunk group of the switching office of the operator and can be transmitted from this switching office to the operator.

30 20. A telecommunications network as claimed in Claim 19, further comprising:

a data channel other than the call channel for transmitting the data from the peripheral line trunk group to the operator.

21. A telecommunications network as claimed in Claim 19, further comprising:

a data link program for transmitting the data via the set up call channel.

22. A telecommunications network as claimed in Claim 19, further comprising:

a data link interface for loading the data from the coordination processor of the master office in blocks.

23. A telecommunications network as claimed in Claim 19, wherein the network is an ISDN network, the data channel is a D channel and the call channels are B channels.

24. A telecommunications network as claimed in Claim 19, further comprising:

an ISUP signaling system for interoffice signaling.

#### REMARKS

The present amendment makes editorial changes and corrects typographical errors in the Specification, which includes the Abstract, in order to conform the Specification to the requirements of United States Patent Practice. No new matter is added thereby. Attached hereto is a marked-up version of the changes made to the Specification by the present amendment. The attached page is captioned **"Version With Markings To Show Changes Made"**.

In addition, the present amendment cancels original claims 1-12 in favor of new claims 13-24. Claims 13-24 have been presented solely because the revisions by crossing-out and underlining which would have been necessary in claims 1-12 in order to present those claims in accordance with preferred United States Patent

Practice would have been too extensive, and thus would have been too  
burdensome. The present amendment is intended for clarification purposes only  
and not for substantial reasons related to patentability pursuant to 35 U.S.C. §§103,  
102, 103 or 112. Indeed, the cancellation of claims 1-12 does not constitute an  
5 intent on the part of the Applicant to surrender any of the subject matter of claims  
1-12.

Early consideration on the merits is respectfully requested.


Respectfully submitted,

10

BELL, BOYD & LLOYD LLC

15

BY

  
William E. Vaughan  
Reg. No. 39,036  
P.O. Box 1135  
Chicago, Illinois 60690-1135  
Phone: (312) 807-4292

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Description

~~Method for conveying information between a switching office and a~~  
~~communications terminal~~

5

SPECIFICATION

TITLE OF THE INVENTION

METHOD AND TELECOMMUNICATIONS NETWORK FOR CONVEYING  
INFORMATION BETWEEN A SWITCHING OFFICE AND A  
COMMUNICATIONS TERMINAL

10

BACKGROUND OF THE INVENTION

The present invention ~~also~~ relates to a method for transmitting data to operators of a telecommunications network which are members of an operator service, the data being specifically for the operator service, and at least one data channel and at least one call channel being available for each link.

15

The present invention also relates to a telecommunications network having a ~~plurality~~ number of switching offices, in which telecommunications network operators which are members of an operator service are connected to at least one switching office, and each switching office has at least one coordination processor and peripheral line trunk groups with a group processor for the subscribers.

20

What are referred to as operator services which constitute an essential link between the customers of the network and the network operators are required in telephone networks. Such an operator service has diverse functions, one main function being to distribute information to subscribers on request. For example, a subscriber may call an operator service in an ISDN network and request

25 information. The respective operator can then, if necessary, access a database, for example, in which case information relating to another subscriber is then provided to him/her on the screen of a PC. After a connection request by the operator, which can be effected, for example, by pressing a push-button key, the operator is connected to the searched-for subscriber. The operator is then connected back to

30 the originating subscriber and to the searched-for subscriber and can optionally speak to one of the subscribers. Signaling on the D channel then takes place again



at the push of a further push-button key, and the connection situations of the two subscribers of the peripheral line trunk group are indicated, and the call channels are connected via the switching matrix so that ultimately there is a direct link between the two subscribers. The example described here is intended to represent  
5 just one of the possibilities or functions of an operator service.

Larger networks with a larger number of subscribers require a correspondingly large number of operator service systems with a large number of usually hierarchically structured system subscribers (operators), such as, for example, as in the case of the Applicant's system which is called ADMOSS.  
10 Messages from the operators to a switching office are sent, as already mentioned, in the D channel in an ISDN network, specifically in a point-to-point configuration with a permanently active layer 2 of the OSI layer model. The messages are transmitted in an ISDN network with the support of the D channel protocol, for which reason reference is also made to the Blue Book, Volume VI - Fascicle VI.  
15 11, "Digital Subscriber Signalling System No. 1 (DSS1), Network Layer, User-Network Management", Recommendations Q. 930 - Q. 940, in particular to Recommendation Q. 931.

The operators are usually located in what are referred to as call centers, and a respective device, composed of a terminal, PC, screen etc., and referred to below,  
20 ~~as is the usual practice,~~ as "console" is directly connected to the system and/or can be connected to the local switching office. However, the need to use decentralized operators, for example within the context of homeworkers, is being increasingly felt, but a single central management system for the operators in the network should still be possible.

25 The PC of each operator has software installed which is suitable for the operator service, but when the operator logs on, i.e. the console is respectively first put into operation, data from the carrier is also required. In such a case, the operator logs on by inputting his/her password and his ID numbers and specific data is then loaded onto the console ("downloading") by the carrier, this data being, for  
30 example, the system clock times and data, the hierarchy structure, personal data and different rights, for example access possibilities to statistical data etc. If the

operator is a supervisor, i.e. a high-ranking member in the hierarchy, he/she will also obtain access to tables which provide information on the working status of other operators etc.

5 ~~One object of the invention is to disclose a method which permits the aforesaid specific information, which will be available in a centrally stored form, to be loaded to operator consoles which may be situated at any desired location in a network, without complex changes to existing systems being required.~~

US-A-5,469,504 describes a call distributor system having a host computer together with a database which is physically connected to all the switching offices, and serves as a system for switching and/or conveying the data between the individual switching offices to which operators of an operator service are connected. In this system, a call link is firstly offered to an operator via the local switching office and, if the operator is not suitably located for this call, this call is transferred to a further operator using the host computer, this transfer being made using a special protocol, referred to in the document as "intertandem protocol". This protocol uses a DTMF method. The expenditure incurred as a result of the use of the host computer in conjunction with the X.25 interface protocol described in the document and the intertandem protocol is, however, to be considered as disadvantageous.

20 One object of the present invention is to disclose a method which permits the aforesaid specific information, which will be available in a centrally stored form, to be loaded to operator consoles which may be situated at any desired location in a network, without complex changes to existing systems being required.

#### SUMMARY OF THE INVENTION

25 This object is achieved with a method ~~of the type mentioned at the beginning~~ in which, according to the present invention, after an operator logs ~~onto~~ on to a remote master office in which the specific data for the operator service are present centrally, a request is transmitted by the coordination processor of the master office to a virtual operator set up in a peripheral line trunk group in order to initiate a dialing process to the operator, after which a link setup to the subscriber is carried out via a call channel and a corresponding message is transmitted to the

coordination processor, ~~the~~ . The data to be transmitted are then loaded in the master office from the coordination processor into a group processor, a data transmission link in the master office is set up starting from this group processor to a peripheral line trunk group for fast data links, and the data to be transmitted is then transmitted via a data link to a peripheral line trunk group for fast data links between the switching office of the operator and from there, within the switching office, to the peripheral line trunk group (LTG) of the operator, ~~and finally~~ . Finally, the data to be transmitted is transmitted from this peripheral line trunk group to the operator (OP1).

10 ~~Thanks Pursuant~~ to the present invention, operators which are also connected to different switching offices of a communications network can receive specific, centrally managed data, this loading of data not necessarily having to be restricted to the initialization phase when logging on is performed.

It is expedient if the data to be transmitted is transmitted from the peripheral line trunk group to the operator via a data channel, this constituting the customary possibility for the data transmission, which also should be provided in the network in accordance with regulations.

However, because, ~~on the other hand~~, a call connection is set up according to the present invention, it ~~may~~ also may be appropriate if the data to be transmitted is transmitted via the set-up call channel using a data link program.

In order to take into account the dynamics and the resources of the group processor of the master office, an indication is given if the data from the coordination processor of the master office is loaded into the group processor in blocks of limited size via an existing data link interface.

25 The present invention is particularly suitable for applications in an ISDN network, the data channel being the D channel, and the call channels being B channels. In this case, the inter-office signaling system is advantageously an ISUP signaling system.

The aforementioned object of the present invention is also achieved with a telecommunications network ~~of the type specified at the beginning~~, in which, according to the present invention, a virtual operator is set up in a peripheral line

trunk group of a switching office serving as master office, and is provided for transmitting data from the coordination processor of the master office to an operator of the operator service, and the . The coordination processor of the master office is configured to transmit a request to the virtual operator, and to initiate a dialing process to the operator so that the data to be transmitted can be transmitted, after setting up of a data transmission link within the master office, via a peripheral line trunk group for fast data links of the master office to such a line trunk group of the switching office of the operator and can be transmitted from this switching office to the operator.

Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the Figures.

#### BRIEF DESCRIPTION OF THE FIGURES

Figure 1 shows the basic structure of a network with two switching offices and an operator service.

#### DETAILED DESCRIPTION OF THE INVENTION

~~The advantages which can be achieved in this way and those which are related to the features of the dependent claims 8 to 12 correspond to the advantages mentioned in conjunction with the method and the invention.~~

~~The invention, together with further advantages, is explained in more detail below with reference to an exemplary embodiment and by means of the drawing. The latter shows in its single figure the basic structure of a network with two switching offices illustrated and an operator service.~~

#### DETAILED DESCRIPTION OF THE INVENTION

At the top left of the figure there are a number of operators OP1, OP2 ... of an operator service OPS, details of the hierarchy within the operators OP1, OP2 ... not being given here. All operators OP1, OP2 ... are next to customary network operators TEI of a telecommunications network NET, of an ISDN network in the present case, and are therefore connected into the network via an S<sub>0</sub> interface; i.e., each connected here to a network terminal NTE.

A first switching office VS1 of the network is shown top right and it has, in a manner known per se, a switching matrix SNE and periphery line trunk groups LTG, LTC connected thereto. A coordination processor COP is provided for controlling the switching office VS1, especially the switching matrix SNE. Each peripheral line trunk group LTG, LTC also contains, in a known manner, a group processor GRP, ~~and in~~. In this exemplary embodiment concentrators DLU (Digital Line Unit) are connected to each peripheral line trunk group via a  $U_{k0}$  interface. Each of these concentrators DLU also has a plurality number of inputs for the network terminals already mentioned above. In the case of relatively large switching offices, up to 512 peripheral line trunk groups LTG, LTC can be connected to a switching matrix SNE, and usually two concentrators DLU are connected to each line trunk group LTG. The peripheral line trunk groups LTG, LTC each also contain, in a known manner, what is referred to as a group switch GSI.

In a peripheral line trunk group LTG, LTC, various programs are executed which are supported by the group processor GRP; for example, the greater part of the connection setup, the signaling, the code reception etc., takes place here. In general, 70% of the connection setup is carried out in the peripheral line trunk groups, whereas especially routing functions are assigned to the coordination processor COP.

The switching office also ~~comprises~~ includes an operation and maintenance system OMS with an operation and maintenance terminal OMT at which monitoring personnel can continuously monitor the state of the switching office and detect faults.

The operators OP1, OP2 ... of the operator service OPS usually have workstations with personal computers which contain ISDN cards and special software as well as headsets for the operators. The operators OP1, OP2, ... can transmit messages to the switching office, especially to the peripheral line trunk groups LTG, these messages being processed in the group processor GRP and devised to corresponding further measures; for example, a connection setup. The

messages are transmitted in a point-to-point configuration with a permanently active layer 2 and in the D channel in an ISDN network.

Bottom right in the drawing there is a further switching office VS2 which is associated with the network NET and whose setup corresponds basically to the first switching office VS1, but the second switching office VS2 serves as a master office above the operator service. Of course, a large number of other switching offices (not shown here) may also may be provided as a function of the size of the network.

Each switching office VS1, VS2 has a particular peripheral line trunk group LTC for fast data links which permit data exchange, within the scope of inter-office signaling; for example, in the ISUP signaling system (see, for example, P. Bocker, ISDN - Digitale Netze für Sprach-, Text-, Daten-, Video- und Multimediakommunikation [Digital Networks for Call, Text, Data, Video and Multimedia Communication], 4th Edition, Springer [Publishing house], Section 6.2.9, "Zwischenamtsignalisierung" [Inter-office signaling]), with other such line trunk groups via rapid data links, for example optical fiber lines.

In the present case, that data which is to be loaded into the consoles of the operators OP1, OP2, ... may be in the remote office, i.e. the switching office VS2, namely in its coordination processor COP. In order to transmit the aforesaid data which is specifically for the operator service and which is composed, for example, of tables for the function of the console, to the operator OP1, the present invention provides a method described in more detail below.

Firstly, the operator OP1 logs on with a password and an ID number to the remote switching office VS2, the master office, which is, however, not a subject of the present invention. In principle, after the operator OP1 logs ~~on to~~ on to the remote switching office VS2, the coordination processor COP of the master office VS2 transmits a request to a virtual operator VOP to initiate a dialing process to the operator OP1. Such a virtual operator, which is set up in a peripheral line trunk group LTG, is required by the coordination processor COP in order to be able to set up a call link. In fact, a connection setup is then carried out starting from the virtual operator VOP, to the operator OP1 via a call channel, here a B channel, and after

the successful connection setup the coordination processor COP is also informed of the call status and also informed in the event of a disconnection of the link.

209379404600  
The corresponding program part then initiates, given a successful setup of a link, a data link connection from a PC or the like to the coordination processor, a  
5 corresponding identification of this new type of link, which ~~can~~ also can be referred to as a "remote downloading" link, being used. The data is then loaded, for example, in blocks of four kbytes into a group processor GRP by the coordination processor ~~by means of~~ via the existing data link interface. A data transmission link RIN (Report Interface) in the master office VS2 is then set up  
10 starting from this group processor GRP to a peripheral line trunk group LTC. This line trunk group LTC is used for fast data links to other offices, the data to be transmitted then being transmitted via a fast data link, for example an optical fiber cable, to a corresponding peripheral line trunk group LTC of the switching office VS1 of the subscriber OP1, from here within the switching office VS1 to the  
15 peripheral line trunk group LTG of the subscriber, ~~and finally~~ . Finally, the data to be transmitted are transmitted from this peripheral line trunk group LTG to the operator OP1 and loaded there. The transmission from the peripheral line trunk group LTG of the operator OP1 to the latter is made via a D channel in which a data link to the console is set up. However, it is also possible to load the further  
20 data into the console via a B channel link, for which purpose a corresponding data transmission protocol has to be employed for using the B channel as a data transport medium. After all the data has been transmitted, the data link connection is released and finally the existing call between the operator OP1 and the vertical operator is also released from the console.

25 It is to be noted that the loading of data does not necessarily have to have its starting point in a request of the operator OP1, but a link from the master office to the operator OP1 can instead also be made at the request of the operator service using the virtual operator VOP. Of course, all this presumes that the call numbers of the corresponding operators OP1, OP2, ... are known to the master office VS2.  
30 In this context, it is necessary to set up a call for addressing purposes, and the data can then, as already mentioned, ~~either~~ be transmitted either over the D channel at

16 kbit/s in the case of ISDN or even over a B channel with an even higher speed; namely, 64 kbit/s in the case of ISDN. The present invention therefore permits a significant expansion of an operator service because the latter can be integrated into a large network with a multiplicity of switching offices (only two are shown in the drawing for the sake of simplification), and nevertheless centralized and clearly organized management is possible. The data loaded into the console also makes it possible to take into account the hierarchy in the operator service which is mentioned at the start, so that higher-ranking operators can receive preferred data which is not to be made available to all operators.

Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be made thereto without departing from the spirit and scope of the invention as set forth in the hereafter appended claims.



Abstract

ABSTRACT OF THE DISCLOSURE

Method for conveying information between a switching office which is arranged in  
a communications network and at least one communications terminal or subscriber  
5 which is assigned to the communications network, and use of the method and  
telecommunications network

A method and a telecommunications network (NET) for transmitting data to  
subscribers (OP1) of an operator service (OPS), in which, after a subscriber (OP1)  
10 logs ~~on~~ on to a remote master office (VS2), a request is transmitted from his/her  
coordination processor (COP) to a virtual operator (VOP) in order to initiate a  
dialing process to the subscriber (OP1), a link setup to the subscriber is carried out  
via a voice channel, the data to be transmitted is then loaded in the master office  
from the coordination processor (CP2) into a group processor (GRP), a data  
15 transmission link (RLN) in the master office (VS2) is set up to a peripheral line  
trunk group (LTC) for fast data links, and the data to be transmitted is then  
transmitted via a data link to the switching office (VS1) of the subscriber (OP1)  
and from here to the subscriber (OP1).

20 Fig. 1

09/937917

Description

JCO9 Rec'd PCT/PTO 01 OCT 2001

Method for conveying information between a switching office and a communications terminal

5

The invention also relates to a method for transmitting data to operators of a telecommunications network which are members of an operator service, the data being specifically for the operator service, and at least one data channel and at least one call channel being available for each link.

10

15

The invention also relates to a telecommunications network having a plurality of switching offices, in which telecommunications network operators which are members of an operator service are connected to at least one switching office, and each switching office has at least one coordination processor and peripheral line trunk groups with a group processor for the subscribers.

20

25

30

35

What are referred to as operator services which constitute an essential link between the customers of the network and the network operators are required in telephone networks. Such an operator service has diverse functions, one main function being to distribute information to subscribers on request. For example, a subscriber may call an operator service in an ISDN network and request information. The respective operator can then, if necessary, access a database, for example, in which case information relating to another subscriber is then provided to him on the screen of a PC. After a connection request by the operator, which can be effected for example by pressing a push-button key, the operator is connected to the searched-for subscriber. The operator is then connected back to the originating subscriber and to the searched-for subscriber and can optionally speak to one of the

AMENDED SHEET

subscribers. Signaling on the D channel then takes place again at the push of a further push-button key, and the

connection situations of the two subscribers of the peripheral line trunk group are indicated, and the call channels are connected via the switching matrix so that ultimately there is a direct link between the two subscribers. The example described here is intended to represent just one of the possibilities or functions of an operator service.

Larger networks with a larger number of subscribers require a correspondingly large number of operator service systems with a large number of usually hierarchically structured system subscribers (operators), such as, for example, as in the case of the Applicant's system which is called ADMOSS. Messages from the operators to a switching office are sent, as already mentioned, in the D channel in an ISDN network, specifically in a point-to-point configuration with a permanently active layer 2 of the OSI layer model. The messages are transmitted in an ISDN network with the support of the D channel protocol, for which reason reference is also made to the Blue Book, Volume VI - Fascicle VI. 11, "Digital Subscribe Signalling System No. 1 (DSS1), Network Layer, User-Network Management", Recommendations Q. 930 - Q. 940, in particular to Recommendation Q. 931.

The operators are usually located in what are referred to as call centers, and a respective device, composed of a terminal, PC, screen etc. and referred to below, as is the usual practice, as "console" is directly connected to the system and/or can be connected to the local switching office. However, the need to use decentralized operators, for example within the context of homeworkers, is being increasingly felt, but a single central management system for the operators in the network should still be possible.

The PC of each operator has software installed which is suitable for the operator service, but when the operator logs on, i.e. the console is respectively first put into operation, data from the carrier is also  
5 required. In such a case, the operator logs on by inputting his password and his ID numbers and specific data is then

loaded onto the console ("downloading") by the carrier, this data being for example the system clock times and data, the hierarchy structure, personal data and different rights, for example access possibilities to statistical data etc. If the operator is a supervisor, i.e. a high-ranking member in the hierarchy, he will also obtain access to tables which provide information on the working status of other operators etc.

One object of the invention is to disclose a method which permits the aforesaid specific information, which will be available in a centrally stored form, to be loaded to operator consoles which may be situated at any desired location in a network, without complex changes to existing systems being required.

US-A-5,469,504 describes a call distributor system having a host computer together with a database which is physically connected to all the switching offices, and serves as a system for switching and/or conveying the data between the individual switching offices to which operators of an operator service are connected. In this system, a call link is firstly offered to an operator via the local switching office and, if the operator is not suitably located for this call, this call is transferred to a further operator using the host computer, this transfer being made using a special protocol, referred to in the document as "intertandem protocol". This protocol uses a DTMF method. The expenditure incurred as a result of the use of the host computer in conjunction with the X.25 interface protocol described in the document and the intertandem protocol is, however, to be considered as disadvantageous.

This object is achieved with a method of the type mentioned at the beginning in which, according to the

invention, after an operator logs onto a remote master  
office in which the specific

AMENDED SHEET

2025/01/16 16:22:50

data for the operator service are present centrally, a request is transmitted by the coordination processor of the master office to a virtual operator set up in a peripheral line trunk group in order to initiate a dialing process to the operator, after which a link setup to the subscriber is carried out via a call channel and a corresponding message is transmitted to the coordination processor, the data to be transmitted are then loaded in the master office from the coordination processor into a group processor, a data transmission link in the master office is set up starting from this group processor to a peripheral line trunk group for fast data links, and the data to be transmitted is then transmitted via a data link to a peripheral line trunk group for fast data links between the switching office of the operator and from there, within the switching office, to the peripheral line trunk group (LTG) of the operator, and finally the data to be transmitted is transmitted from this peripheral line trunk group to the operator (OP1).

Thanks to the invention, operators which are also connected to different switching offices of a communications network can receive specific, centrally managed data, this loading of data not necessarily having to be restricted to the initialization phase when logging on is performed.

It is expedient if the data to be transmitted is transmitted from the peripheral line trunk group to the operator via a data channel, this constituting the customary possibility for the data transmission, which also should be provided in the network in accordance with regulations.

However, because, on the other hand, a call connection is set up according to the invention, it may also be appropriate if the data to be transmitted is



transmitted via the set-up call channel using a data link program.

AMENDED SHEET

In order to take into account the dynamics and the resources of the group processor of the master office, an indication is given if the data from the coordination processor of the master office is loaded  
5 into the group processor in blocks of limited size via an existing data link interface.

The invention is particularly suitable for applications in an ISDN network, the data channel being the D  
10 channel, and the call channels being B channels. In this case, the inter-office signaling system is advantageously an ISUP signaling system.

The object of the invention is also achieved with a  
15 telecommunications network of the type specified at the beginning, in which, according to the invention, a virtual operator is set up in a peripheral line trunk group of a switching office serving as master office, and is provided for transmitting data from the  
20 coordination processor of the master office to an operator of the operator service, and the coordination processor of the master office is configured to transmit a request to the virtual operator, and to initiate a dialing process to the operator so that the  
25 data to be transmitted can be transmitted, after setting up of a data transmission link within the master office, via a peripheral line trunk group for fast data links of the master office to such a line trunk group of the switching office of the operator and  
30 can be transmitted from this switching office to the operator.

The advantages which can be achieved in this way and those which are related to the features of the  
35 dependent claims 8 to 12 correspond to the advantages mentioned in conjunction with the method and the invention.

The invention, together with further advantages, is explained in more detail below with reference to an exemplary embodiment and by means of the drawing. The latter shows in its single

figure the basic structure of a network with two switching offices illustrated and an operator service.

At the top left of the figure there are a number of operators OP1, OP2 ... of an operator service OPS, details of the hierarchy within the operators OP1, OP2 ... not being given here. All operators OP1, OP2 ... are next to customary network operators TEI of a telecommunications network NET, of an ISDN network in the present case, and are therefore connected into the network via an  $S_0$  interface, i.e. each connected here to a network terminal NTE.

A first switching office VS1 of the network is shown top right and it has, in a manner known per se, a switching matrix SNE and periphery line trunk groups LTG, LTC connected thereto. A coordination processor COP is provided for controlling the switching office VS1, especially the switching matrix SNE. Each peripheral line trunk group LTG, LTC also contains, in a known manner, a group processor GRP, and in this exemplary embodiment concentrators DLU (Digital Line Unit) are connected to each peripheral line trunk group via a  $U_{k0}$  interface. Each of these concentrators DLU also has a plurality of inputs for the network terminals already mentioned above. In the case of relatively large switching offices, up to 512 peripheral line trunk groups LTG, LTC can be connected to a switching matrix SNE, and usually two concentrators DLU are connected to each line trunk group LTG. The peripheral line trunk groups LTG, LTC each also contain, in a known manner, what is referred to as a group switch GSI.

In a peripheral line trunk group LTG, LTC, various programs are executed which are supported by the group processor GRP, for example the greater part of the connection setup, the signaling, the code reception

etc. takes place here. In general, 70% of the connection setup is carried out in the peripheral

line trunk groups, whereas especially routing functions are assigned to the coordination processor COP.

5 The switching office also comprises an operation and maintenance system OMS with an operation and maintenance terminal OMT at which monitoring personnel can continuously monitor the state of the switching office and detect faults.

10 The operators OP1, OP2 ... of the operator service OPS usually have workstations with personal computers which contain ISDN cards and special software as well as headsets for the operators. The operators OP1, OP2, ...  
15 can transmit messages to the switching office, especially to the peripheral line trunk groups LTG, these messages being processed in the group processor GRP and devised to corresponding further measures, for example a connection setup. The messages are transmitted in a point-to-point configuration with a  
20 permanently active layer 2 and in the D channel in an ISDN network.

Bottom right in the drawing there is a further switching office VS2 which is associated with the  
25 network NET and whose setup corresponds basically to the first switching office VS1, but the second switching office VS2 serves as a master office above the operator service. Of course, a large number of other switching offices (not shown here) may also be  
30 provided as a function of the size of the network.

Each switching office VS1, VS2 has a particular peripheral line trunk group LTC for fast data links which permit data exchange, within the scope of inter-  
35 office signaling, for example in the ISUP signaling system (see for example P. Bocker, ISDN - Digitale Netze für Sprach-, Text-, Daten-, Video- und Multimediakommunikation [Digital Networks for Call,

Text, Data, Video and Multimedia Communication], 4th  
Edition, Springer [Publishing house], Section 6.2.9,  
"Zwischenamtsignalisierung" [Inter-office signaling]),  
with other such

line trunk groups via rapid data links, for example optical fiber lines.

In the present case, that data which is to be loaded  
5 into the consoles of the operators OP1, OP2, ... may be  
in the remote office, i.e. the switching office VS2,  
namely in its coordination processor COP. In order to  
transmit the aforesaid data which is specifically for  
the operator service and which is composed, for  
10 example, of tables for the function of the console, to  
the operator OP1, the invention provides a method  
described in more detail below.

Firstly, the operator OP1 logs on with a password and  
15 an ID number to the remote switching office VS2, the  
master office, which is however not a subject of the  
present invention. In principle after the operator OP1  
logs onto the remote switching office VS2, the  
coordination processor COP of the master office VS2  
20 transmits a request to a virtual operator VOP to  
initiate a dialing process to the operator OP1. Such a  
virtual operator, which is set up in a peripheral line  
trunk group LTG, is required by the coordination  
processor COP in order to be able to set up a call  
25 link. In fact, a connection setup is then carried out  
starting from the virtual operator VOP, to the operator  
OP1 via a call channel, here a B channel, and after the  
successful connection setup the coordination processor  
COP is also informed of the call status and also  
30 informed in the event of a disconnection of the link.

The corresponding program part then initiates, given a  
successful setup of a link, a data link connection from  
a PC or the like to the coordination processor, a  
35 corresponding identification of this new type of link,  
which can also be referred to as a "remote downloading"  
link, being used. The data is then loaded, for example,  
in blocks of four kbytes into a group processor GRP by



the coordination processor

AMENDED SHEET

by means of the existing data link interface. A data transmission link RIN (Report Interface) in the master office VS2 is then set up starting from this group processor GRP to a peripheral line trunk group LTC.

5 This line trunk group LTC is used for fast data links to other offices, the data to be transmitted then being transmitted via a fast data link, for example an optical fiber cable, to a corresponding peripheral line trunk group LTC of the switching office VS1 of the subscriber OP1, from here within the switching office  
10 VS1 to the peripheral line trunk group LTG of the subscriber, and finally the data to be transmitted are transmitted from this peripheral line trunk group LTG to the operator OP1 and loaded there. The transmission  
15 from the peripheral line trunk group LTG of the operator OP1 to the latter is made via a D channel in which a data link to the console is set up. However, it is also possible to load the further data into the console via a B channel link, for which purpose a  
20 corresponding data transmission protocol has to be employed for using the B channel as a data transport medium. After all the data has been transmitted, the data link connection is released and finally the existing call between the operator OP1 and the vertical  
25 operator is also released from the console.

It is to be noted that the loading of data does not necessarily have to have its starting point in a request of the operator OP1, but a link from the master  
30 office to the operator OP1 can instead also be made at the request of the operator service using the virtual operator VOP. Of course, all this presumes that the call numbers of the corresponding operators OP1, OP2, ... are known to the master office VS2. In this  
35 context, it is necessary to set up a call for addressing purposes, and the data can then, as already mentioned, either be transmitted over the D channel at 16 kbit/s in the case of ISDN or even

over a B channel with an even higher speed, namely 64 kbit/s in the case of ISDN. The invention therefore permits

a significant expansion of an operator service because the latter can be integrated into a large network with a multiplicity of switching offices (only two are shown in the drawing for the sake of simplification), and  
5 nevertheless centralized and clearly organized management is possible. The data loaded into the console also makes it possible to take into account the hierarchy in the operator service which is mentioned at the start, so that higher-ranking operators can receive  
10 preferred data which is not to be made available to all operators.

AMENDED SHEET

Patent claims

1. A method for transmitting data to operators (OP1, OP2, ...) of a telecommunications network (NET) which are members of a operator service (OPS), the data for the operator service being specific, and at least one data channel and at least one call channel being available for each link, characterized in that, after an operator (OP1) logs onto a remote master office (VS2) in which the specific data for the operator service is present centrally, a request is transmitted by the coordination processor (COP) of the master office (VS2) to a virtual operator (VOP) set up in a peripheral line trunk group (LTB) in order to initiate a dialing process to the operator (OP1), after which a link setup to the operator is carried out via a call channel and a corresponding message is transmitted to the coordination processor, the data to be transmitted are then loaded in the master office from the coordination processor (CP2) into a group processor (GRP), a data transmission link (RIN) in the master office (VS2) is set up starting from this group processor (GRP) to a peripheral line trunk group (LTC) for fast data links, and the data to be transmitted is then transmitted via a data link to a peripheral line trunk group (LTC) for fast data links of the switching office (VS1) of the subscriber (OP1) and from there, within the switching office (VS1), to the peripheral line trunk group (LTG) of the operator (OP1), and finally the data to be transmitted are transmitted from this peripheral line trunk group (LTG) to the operator (OP1).
2. The method as claimed in claim 1, characterized in that the data to be transmitted is transmitted from the peripheral line trunk group (LTG) to the

operator (OP1) via a data channel other than the  
call channel.

AMENDED SHEET

3. The method as claimed in claim 1, characterized in that the data to be transmitted is transmitted via the set-up call channel using a data-link program.
- 5 4. The method as claimed in one of claims 1 to 3, characterized in that the data is loaded from the coordination processor (COP) of the master office (VS2) into the group processor (GRP) in blocks of limited size via an existing data-link interface.
- 10 5. The method as claimed in one of claims 1 to 4, in which the communications network (NET) is an ISDN network, the data channel is the D channel and the call channels are B channels.
- 15 6. The method as claimed in claim 5, characterized in that the inter-office signaling system is an ISUP signaling system.
- 20 7. A telecommunications network (NET) having a plurality of switching offices (VS1, VS2) in which operators (OP1, OP2, ...), which are members of an operator service (OPS), are connected to at least one switching office, and each switching office
- 25 has at least one coordination processor (COP) and peripheral line trunk groups (LTG) with a group processor (GRP) for the subscribers, characterized in that a virtual operator (VOP) is set up in a peripheral line trunk group (LTG) of a switching
- 30 office (VS2) serving as master office, and is provided for transmitting data from the coordination processor (COP) of the master office (VS2) to an operator (OP1) of the operator service, and the coordination processor (COP) of
- 35 the master office (VS2) is configured to transmit a request to the virtual operator (VOP),

and to initiate a dialing process to the operator (OP1) so that the data to be transmitted can be transmitted, after setting up of a data transmission link (RIN) within the master office (VS2), via a peripheral line trunk group (LTC) for fast data links of the master office (VS2) to such a line trunk group (LTC) of the switching office (VS1) of the operator (OP1) and can be transmitted from this switching office (VS1) to the operator (OP1).

8. The telecommunications network as claimed in claim 7, characterized in that a data channel other than the call channel is provided for transmitting the data from the peripheral line trunk group (LTG) to the operator (OP1).

9. The telecommunications network as claimed in claim 7 or 8, characterized in that a data link program is provided for transmitting the data via the set-up call channel.

10. The telecommunications network as claimed in one of claims 7 to 9, characterized in that a data link interface is provided for loading the data from the coordination processor (COP) of the master office (VS2) in blocks.

11. The telecommunications network as claimed in one of claims 1 to 10, characterized in that it is an ISDN network, the data channel is the D channel and the call channels are B channels.

12. The telecommunications network as claimed in claim 11, characterized in that the inter-office signaling system is an ISUP signaling system.



09/937917

J009 Rec'd PCT/PTO 01 OCT 2001

BOX PCT

IN THE UNITED STATES ELECTED/DESIGNATED OFFICE  
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE  
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

**SUBMISSION OF DRAWINGS**

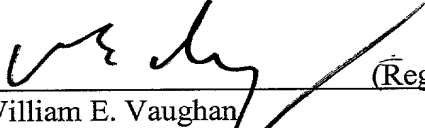
APPLICANT: Wahid Adli DOCKET NO.: 112740-342  
SERIAL NO: GROUP ART UNIT:  
FILED: EXAMINER:  
INTERNATIONAL APPLICATION NO. PCT/DE00/00931  
INTERNATIONAL FILING DATE: 27 March 2000  
INVENTION: METHOD AND TELECOMMUNICATIONS NETWORK, FOR  
CONVEYING INFORMATION BETWEEN A SWITCHING OFFICE  
AND A COMMUNICATIONS TERMINAL

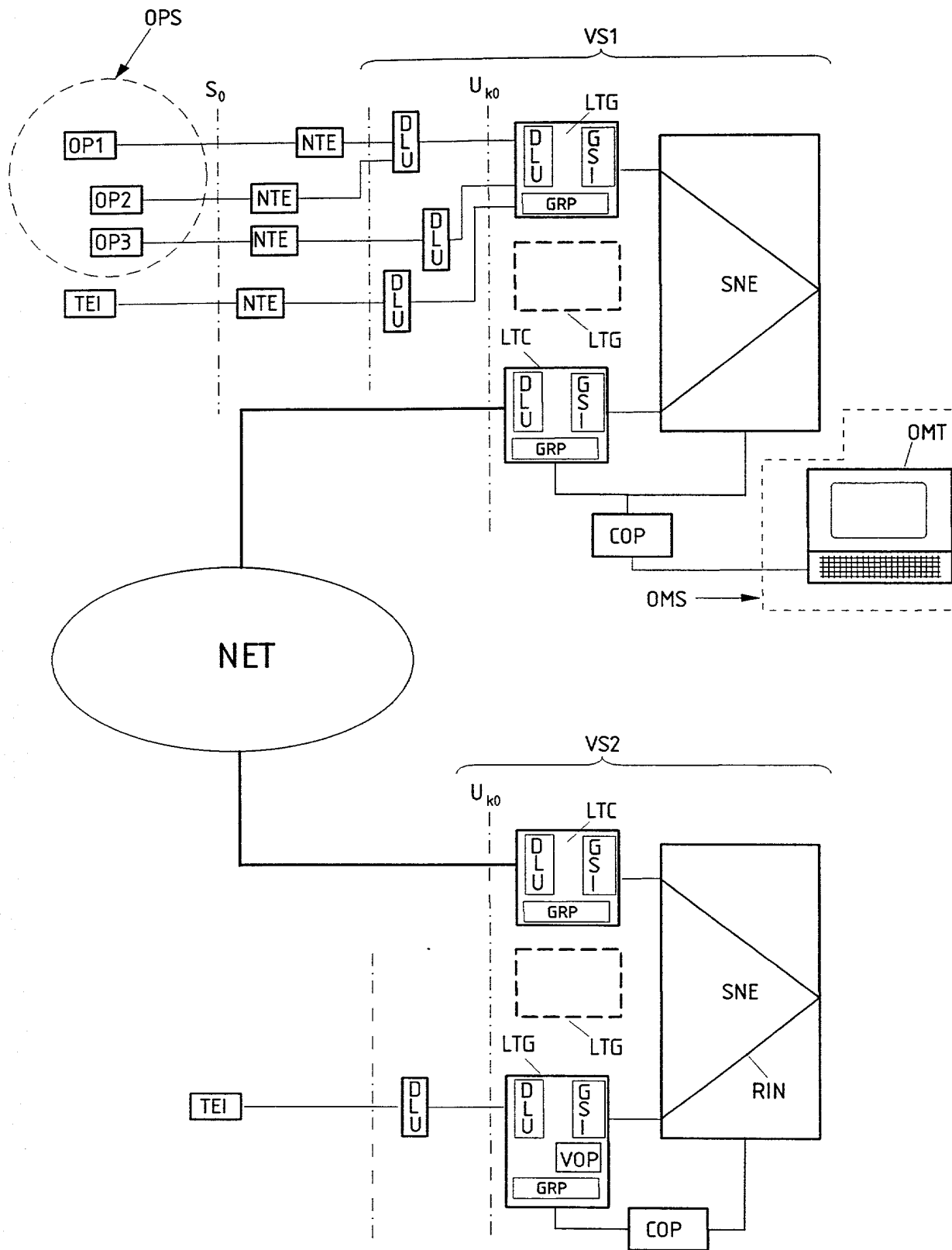
Assistant Commissioner for Patents,  
Washington, D.C. 20231

Sir:

Applicant herewith submits one sheet (Fig. 1) of drawings for the above-  
referenced PCT application.

Respectfully submitted,

  
(Reg. No. 39,056)  
William E. Vaughan  
Bell, Boyd & Lloyd LLC  
P.O. Box 1135  
Chicago, Illinois 60690-1135  
(312) 807-4292  
Attorneys for Applicant



# Declaration and Power of Attorney For Patent Application

## Erklärung Für Patentanmeldungen Mit Vollmacht

### German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

dass mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

dass ich, nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für den dieser Antrag gestellt wird und für den ein Patent beantragt wird für die Erfindung mit dem Titel:

Verfahren zur Übermittlung von  
Informationen zwischen einer  
Vermittlungsstelle und einem  
Kommunikationsendgerät

deren Beschreibung

(zutreffendes ankreuzen)

☐ hier beigefügt ist.

☒ am 27.03.2000 als

PCT internationale Anmeldung

PCT Anmeldungsnummer PCT/DE00/00931

eingereicht wurde und am \_\_\_\_\_  
abgeändert wurde (falls tatsächlich abgeändert).

Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind, an.

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

Method for transmitting information  
between a switching centre and a  
communications terminal

the specification of which

(check one)

☐ is attached hereto.

☒ was filed on 27.03.2000 as

PCT international application

PCT Application No. PCT/DE00/00931

and was amended on \_\_\_\_\_  
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

# German Language Declaration

Prior foreign applications  
Priorität beansprucht

Priority Claimed

19914795.7

DE

31.03.1999

☒

☐

(Number)  
(Nummer)

(Country)  
(Land)

(Day Month Year Filed)  
(Tag Monat Jahr eingereicht)

Yes  
Ja

No  
Nein

10010495.9

DE

03.03.2000

☒

☐

(Number)  
(Nummer)

(Country)  
(Land)

(Day Month Year Filed)  
(Tag Monat Jahr eingereicht)

Yes  
Ja

No  
Nein

(Number)  
(Nummer)

(Country)  
(Land)

(Day Month Year Filed)  
(Tag Monat Jahr eingereicht)

☐  
Yes  
Ja

☐  
No  
Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

PCT/DE00/00931

(Application Serial No.)  
(Anmeldeseriennummer)

27.03.2000

(Filing Date D, M, Y)  
(Anmeldedatum T, M, J)

anhängig

(Status)  
(patentiert, anhängig,  
aufgegeben)

pending

(Status)  
(patented, pending,  
abandoned)

(Application Serial No.)  
(Anmeldeseriennummer)

(Filing Date D,M,Y)  
(Anmeldedatum T, M; J)

(Status)  
(patentiert, anhängig,  
aufgeben)

(Status)  
(patented, pending,  
abandoned)

Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden koennen, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

# German Language Declaration

VERTRETUNGSVOLLMACHT: Als benannter Erfinder beauftrage ich hiermit den nachstehend benannten Patentsanwalt (oder die nachstehend benannten Patentanwälte) und/oder Patent-Agenten mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Geschäfte vor dem Patent- und Warenzeichenamt: (Name und Registrationsnummer anführen)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)



29177

And I hereby appoint

PATENT TRADEMARK OFFICE

Customer No. 29177

Telefongespräche bitte richten an:  
(Name und Telefonnummer)

Direct Telephone Calls to: (name and telephone number)

Ext. \_\_\_\_\_

Postanschrift:

Send Correspondence to:

Bell, Boyd & Lloyd LLC  
Three First National Plaza, 70 West Madison Street, Suite 3300 60602-4207 Chicago, Illinois  
Telephone: (001) 312 372 11 21 and Facsimile (001) 312 372 20 98  
or  
Customer No. 29177

Voller Name des einzigen oder ursprünglichen Erfinders:		Full name of sole or first inventor:	
WAHID ADLI		WAHID ADLI	
Unterschrift des Erfinders:	Datum	Inventor's signature	Date
X Wahid Adli	X 4.10.01		
Wohnsitz		Residence	
WIEN, ÖSTERREICH		WIEN, AUSTRIA	
Staatsangehörigkeit		Citizenship	
AT		AT	
Postanschrift		Post Office Address	
KARTOCHWJLESTR. 12/12/27		KARTOCHWJLESTR. 12/12/27	
A-1220 WIEN ÖSTERREICH		A-1220 WIEN AUSTRIA	
Voller Name des zweiten Miterfinders (falls zutreffend):		Full name of second joint inventor, if any:	
Unterschrift des Erfinders		Second Inventor's signature	
Datum		Date	
Wohnsitz		Residence	
Staatsangehörigkeit		Citizenship	
Postanschrift		Post Office Address	

(Bitte entsprechende Informationen und Unterschriften im Falle von dritten und weiteren Miterfindern angeben).

(Supply similar information and signature for third and subsequent joint inventors).